

Chapter 2 Study Guide

Name

- 1) $R(x) = 7x - 10$. Find:
 - a. the y-intercept
 - b. the x-intercept
 - c. the slope
- 2) Find the equation of the line that passes through $(10, 7)$, $(12, 15)$.

$$m = \frac{15 - 7}{12 - 10} = 4$$

$$y = 4x + b$$

$$15 = 4(12) + b$$

$$15 = 48 + b$$

$$-48 - 48$$

$$-33 = b$$

$$y = 4x - 33$$

- 3) Find the x- and y- intercepts of:
 - a. $2x - 6y = 12$
 - b. $y = 2x - 1$
- 4) Write equations that satisfy the stated conditions:
 - a. A line parallel to $y = 5x - 2$
 - b. A line perpendicular to $y = 3/7x + 10$

$$\textcircled{3} \textcircled{a} \quad 2x + 6(0) = 12$$

$$2x = 12$$

$$(6, 0) \quad x = 6$$

$$2(0) + 6y = 12$$

$$(0, 2) \quad 6y = 12$$

$$y = 2$$

$$\textcircled{4} \textcircled{a) y = 5x + b}$$

$$\textcircled{b) y = -\frac{7}{3}x + b}$$

$$\textcircled{1} \textcircled{a) (0, 10)}$$

$$\textcircled{b) 0 = 7x + 10}$$

$$-10 \quad -10$$

$$\frac{-10}{7} = \frac{7x}{7}$$

$$\left(\frac{-10}{7}, 0\right)$$

$$\textcircled{c) 7}$$

$$\textcircled{b) (0, -1) \leftarrow y\text{-int}}$$

$$0 = 2x - 1$$

$$+1 \quad +1$$

$$\frac{1}{2} = x \quad \left(\frac{1}{2}, 0\right)$$

$$\frac{1}{2} = x \quad x\text{-int}$$

5

The area of a rectangle with a fixed width varies directly with its length. A given rectangle has an area of 100 in^2 and a length of 5 in. Another rectangle has the same width as the first rectangle, but its length is 20 in. Find the area of the second rectangle.

$$5 \boxed{A=100} \\ 20$$

$$20 \boxed{} A=400 \text{ in}^2 \\ 20$$

6

Solve algebraically.

a.

$$3x-10=22$$

b.

$$2x+21=10$$

7

Solve the following. Write your answer in interval notation.

a.

$$3x-3>13$$

b.

$$2x-1 \leq 8$$

$$\textcircled{7} \quad 3x-3 > 13 \\ +3 \quad +3$$

$$\left(\frac{16}{3}, \infty\right) \quad \frac{3x}{3} > \frac{16}{3} \\ x > \frac{16}{3}$$

$$2(x-1) < 8 \\ \frac{2}{2} \quad \frac{2}{2} \\ x-1 < 4$$

$$(-\infty, 5) \quad +1 \quad +1 \\ x < 5$$

$$\textcircled{6} \quad 2x-10=22 \\ +10 \quad +10 \\ 2x=32 \\ \frac{2}{2} \quad \frac{2}{2} \\ x=16$$

$$\textcircled{7} \quad 2(x-5)=10 \\ 2x-10=10 \\ +10 \quad +10 \\ 2x=20 \\ x=10$$

1)

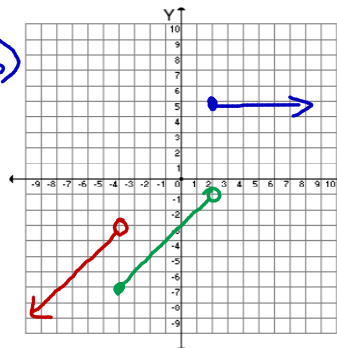
Write the piecewise function

$$f(x) = \begin{cases} x+1 & \text{if } x < 4 \\ x-5 & \text{if } -4 \leq x < 2 \\ 5 & \text{if } x \geq 2 \end{cases}$$

- a. $(-6, -5)$ $(-2, -5)$ $(4, 5)$
 b. $(0, -5)$
 c. none

2) Write the equation

- a. $|2x-1|=7$
 b. $|x-2|>14$
 c. $|4x+1|<9$



x	y
-4	-3
-4	-7
2	-1
2	5

① a) $2x-7=7$
 $2x=14$
 $x=7$
 $2x-1=-7$
 $2x=-6$
 $x=-3$

$\frac{1}{2}x-1=5$ $\frac{1}{2}x-1=-5$
 $+1 \quad +1$ $+1 \quad +1$
 $\frac{1}{2}x=6$ $\frac{1}{2}x=-4$
 $x=12$ $x=-8$

⑩ a) $|x-2|>14$ b) $|4x+1|<9$

$x-2>14$ or $x-2<-14$
 $+2 \quad +2 \quad +2 \quad +2$
 $x>16$ or $x<-12$

$-9<4x+1<9$
 $-1 \quad -1 \quad -1$
 $-10<4x<8$
 $\frac{-10}{4} \quad \frac{0}{4} \quad \frac{8}{4}$
 $-2\frac{1}{2}<x<2$